

## Message Text

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TO DOE GERMANTOWN MD  
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UNCLAS SECTION 01 OF 02 TOKYO 08223

E.O. 11652: N/A  
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SUBJECT: JAPANESE POTENTIAL WIND ENERGY RESOURCES

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REF: (A) RHEGWDC 0206, (B) TOKYO 3131

1. EMBASSY OBTAINED COPY OF REVISED REPORT REF B FROM STA  
INSTITUTE OF RESOURCES. SINCE THE REPORT IS IN JAPANESE ONLY  
AND COVERS 242 PAGES, TABLE OF CONTENTS AND INTRODUCTORY SUMMARY  
HAVE BEEN TRANSLATED. IF ADDITIONAL TRANSLATION DESIRED EMBASSY  
WILL DO BEST TO RESPOND.

2. FOLLOWING IS TABLE OF CONTENTS:

INTRODUCTORY SUMMARY

CHAPTER 1- GENERAL DISCUSSION

1. WHAT ARE WIND ENERGY RESOURCES?
  2. PLACE OF WIND ENERGY IN ENERGY SUPPLY AND DEMAND, AND RELATED
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PROBLEM AREA.

CHAPTER 2- HISTORY AND PRESENT STATUS OF WIND ENERGY UTILIZATION

1. OUTLINE
2. FOREIGN COUNTRIES -- US, NETHERLANDS, DENMARK, USSR, FRANCE,  
WEST GERMANY, UK, AUSTRALIA, NEW ZEALAND, CANADA, S.E. ASIA

3. JAPAN
4. IEA ACTIVITIES

#### CHAPTER 3- WIND ENERGY AND CHARACTERISTICS

1. CONCEPT OF WIND
  2. CHARACTERS OF WIND DATA
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3. WIND DISTRIBUTION IN JAPAN
4. ESTIMATE OF WIND ENERGY

#### CHAPTER 4- WIND TURBINE SYSTEM

1. AIR FORCE SYSTEM OF WIND TURBINE
2. WIND TURBINE TYPES AND EFFICIENCIES
3. HORIZONTAL-SHAFT ROTOR AND EFFECTIVE OUTPUT CHARACTERISTICS
4. VERTICAL-SHAFT ROTOR AND EFFECTIVE OUTPUT CHARACTERISTICS

#### CHAPTER 5- WIND ENERGY CONVERSION, STORAGE AND SUPPLY SYSTEMS

1. CONVERSION
2. STORAGE
3. SUPPLY

#### CHAPTER 6 - WIND ENERGY EFFECTIVE UTILIZATION SYSTEM

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1. OPTIMUM SITE CONDITIONS
2. AREAS OF UTILIZATION OF WIND ENERGY
3. DETERMINATION OF UNIT CAPACITY, WIND TURBINE TYPE, ETC.
4. ECONOMICS OF WIND ENERGY SYSTEM

#### CHAPTER 7- PROMOTION OF WIND ENERGY UTILIZATION AND DEVELOPMENT

1. LONG-RANGE OUTLOOKS ON VARIOUS KINDS OF ENERGY
2. EXISTENCE OF POTENTIAL WIND ENERGY
3. COST OF WIND ENERGY
4. WIND ENERGY ENVIRONMENTAL ASSESSMENT
5. ASSESSMENT OF WIND ENERGY RESOURCES, AND PROPOSITION FOR DEVELOPMENT AND UTILIZATION

#### APPENDIX--TABLES OF WIND DATA (89 PAGES)

3. FOLLOWING IS TRANSLATION OF INTRODUCTORY SUMMARY:

THE OIL CRISIS IN THE FALL OF 1973 SHOCKED JAPAN WHICH HAD ACHIEVED HIGH ECONOMIC GROWTH WITH MASSIVE OIL CONSUMPTION. ENERGY HAS BECOME VITAL TO JAPAN'S NATIONAL ECONOMY. JAPAN MUST STRIVE TO ELIMINATE

ITS HEAVY DEPENDENCE ON OIL BY DEVELOPING EFFICIENT ENERGY UTILIZATION TECHNOLOGIES AND DIVERSIFYING ENERGY SOURCES. JAPAN'S POTENTIAL WIND ENERGY IS CONSIDERED TO BE ROUGHLY EQUAL TO HYDROELECTRIC, THOUGH DEPENDING UPON THE ASSUMPTIONS MADE IN THE COMPUTATION. WIND ENERGY UTILIZATION IS NOTHING NEW, BUT IT ONCE LOST POPULARITY DUE TO THE DEVELOPMENT OF HYDRO, FOSSIL AND NUCLEAR POWER. RECENTLY, WITH INCREASED REQUIREMENTS OF ENERGY SOURCE DIVERSIFICATION AND CLEAN

ENERGY, WIND ENERGY UTILIZATION TECHNOLOGY HAS BECOME IMPORTANT. IN UNCLASSIFIED

JAPAN, BACKWARD IN THIS TECHNICAL FIELD AS COMPARED WITH OTHER

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COUNTRIES, WIND POWER GENERATORS ONLY HUNDREDS OF WATTS IN CAPACITY ARE BEING CONSIDERED FOR ELECTRO-COMMUNICATION RELAY STATION USES. SINCE WIND ENERGY UTILIZATION BEGAN A LONG TIME AGO, ITS TECHNICAL ADVANCEMENT SHOULD BE POSSIBLE TO A CONSIDERABLE LEVEL IN THE NEAR FUTURE, ASIDE FROM SUCH LONG-RANGE STUDY ITEMS AS INCREASE OF CAPACITY AND IMPROVEMENT OF EFFICIENCY. FROM THIS POINT OF VIEW THIS REPORT SUMMED UP STUDIES ON THE CHARACTERISTICS OF WIND ENERGY, THEORIES OF UTILIZATION, AND THE STATUS OF UTILIZATION AND DEVELOPMENT.

THE REPORT ALSO DISCUSSED HOW WIND ENERGY SHOULD BE UTILIZED EFFICIENTLY AND HOW TO PROMOTE SUCH UTILIZATION.

4. THE STA INSTITUTE OF RESOURCES, FROM WHICH THE ABOVE REPORT WAS OBTAINED FREE OF CHARGE, DESIRES COPY OF LITERATURE ON THE THIRD BIENNIAL CONFERENCE AND WORKSHOP ON WIND ENERGY CONVERSION SYSTEMS HELD AT WASHDC IN SEPT. 1977 UNDER COSPONSORSHIP OF ERDA DIV. OF

SOLAR ENERGY. TO RECIPROCATE FOR JAPANESE ASSISTANCE AND TO CONTINUE  
MUTUAL CONTACT, DOE TOKYO OFFICE WOULD APPRECIATE COPY OF  
ABOVE FOR THE INSTITUTE. MANSFIELD

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